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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/652,336

09/02/2003

Peter Poulsen

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7590

01/12/2005

UNITED STATES DEPARTMENT OF ENERGY
1000 INDEPENDENCE AVENUE S.W.
ATTN; GC-62 (OAK), MS 6F-067
WASHINGTON, DC 20585-0162

EXAMINER

PRETLOW, DEMETRIUS R

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/652,336

Applicant(s)

POULSEN, PETER

Examiner

Demetrius R. Pretlow

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9 is/are rejected.
- 7) ☒ Claim(s) 5-7, 10-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In reference to claim 1, variables A_i , B_i , D_i , E_i , e_i are not defined in the claims nor in the disclosure.

In reference to claim 2, A_i , B_i , e_i are not defined in the claims nor in the disclosure.

In reference to claim 4, A_i , B_i , D_i , E_i , e_i are not defined in the claims nor in the disclosure. Also a known power level is not define in the specification. Is the power level intensity, black body power ?

In reference to claim 9, A_i , B_i , D_i , E_i , e_i are not defined in the claims nor in the disclosure.

Examiner can not ascertain what theses values are .

No art has been applied to the claims above.

Drawings

The drawings are objected to because In Figure 8 and Figure 9 do not contain measurement units for the Y-axis. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the **abstract not exceed 150 words in length** since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The disclosure is objected to because of the following informalities: claim 1, variables A_i , B_i , D_i , E_i , e_i are not defined in the claims nor in the disclosure.

In reference to claim 2, A_i , B_i , e_i are not defined in the claims nor in the disclosure.

In reference to claim 4, A_i , B_i , D_i , E_i , e_i are not defined in the claims nor in the disclosure. Also a **known power level** is not define in the specification. Is the known power level intensity, black body power ?

In reference to claim 9, A_i , B_i , D_i , E_i , e_i are not defined in the claims nor in the disclosure.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Makino et al. (US 5,231,595) in view of Shigeoka et al. US 6,479,801 B1. Makino et al. teach measuring light emitted from the surface in each wavelength interval f as emitted light. Note Makino et al. column 3, lines 6-9. Makino et al. teach pulsing a light source off of

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the surface using a known power level in each wavelength interval ; Note Makino et al. column 3, lines 58-67 to column 4, lines 1 and 2. Makino et al. teach measuring light from the surface as the sum total, of the emitted light and reflected light for each wavelength interval. Note Makino et al. column 4, lines 3-13. Makino et al. does not explicitly teach subtracting the emitted light from the sum total SUM to obtain the reflected light, however Makino et al teach the measured light consists of radiated (emitted) light and reflected light. Note Makino et al. column 4, lines 3-13. This suggests that subtracting the radiated (emitted) light from the measured light taught by Makino et al. would give you reflected light. Note Makino et al. column 4, lines 3-13.

Makino et al. does not teach determining plots of emissivity versus temperature for each wavelength interval using the reflected light, the emitted light, and the known power level .

Shigeoka et al. teach determining plots of emissivity versus temperature for each wavelength interval using the reflected light, the emitted light, and the known power level, . Note Shigeoka et al. Figure 4.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Makino et al. to include the teaching of Shigeoka et al. because it would provide measuring the temperature with high accuracy. Note Shigeoka et al. column 7, lines 66-67.

Makino et al. does not teach obtaining the emissivity and temperature of the surface based on the determined plots for each wavelength interval i.

Shigeoka et al. teach obtaining the emissivity and temperature of the surface based on the determined plots for each wavelength interval. Note Figure 4. Shigeoka et al. because it would provide measuring the temperature with high accuracy. Note Shigeoka et al. column 7, lines 66-67.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Makino et al. to include the teaching of Shigeoka et al. because it would provide measuring the temperature with high accuracy. Note Shigeoka et al. column 7, lines 66-67.

Claim Objections

Claims 5 objected to because of the following informalities:

Claims 5 is objected to for depending on rejected claim 4 previously discussed.

Claims 10-12 are objected to for depending on rejected claim 9 previously discussed.

Appropriate correction is required.

Allowable Subject Matter

Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 8 is allowed.

The best prior art of reference particular Ino et al. (US 2002/0192847) teach a reference semiconductor wafer (bare silicon) is used in place of the semiconductor

wafer .omega.a, the reference semiconductor wafer is irradiated with the light radiated from the halogen lamp 113 and the light reflected from the reference semiconductor wafer is received by the spectroscope 115 through the lens 109 and the optical fibers 111 and 114 so as to obtain a spectrum of the light reflected from the reference semiconductor wafer. The reflected light spectrum thus obtained is stored in advance in the reflectance calculating section 116, as described above. The reflectance of the semiconductor wafer .omega.a is obtained within the reflectance calculating section 116, from the ratio of the spectrum of the light reflected from the semiconductor wafer .omega.a to the spectrum of the light reflected from the reference semiconductor wafer, however Ino et al. does not teach the following claim limitations.

The primary reason for the allowance of claim 8 is the inclusion of the method step of obtaining a reflectivity for each wavelength based on using the relationship[in claim 8 and determining an emissivity for each wavelength interval according to the relationship stated and plotting, for each wavelength interval , a ratio of measured power to calculated power normalized to an nth wavelength interval; and obtaining the temperature of the surface of interest based on the plots for each wavelength interval. It is these steps found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Demetrius R. Pretlow whose telephone number is (703) 272-2278. The examiner can normally be reached on 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Demetrius R. Pretlow
Patent Examiner

Demetrius Pretlow 1/3/05

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